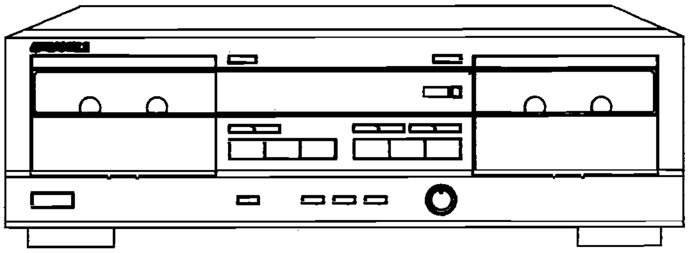
SANSUI

SERVICE MANUAL



D–X219WR

STEREO CASSETTE DECK

CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTICE

1. The symbols UL, CSA, EU, SS and XX (EXPORT) on the parts list and the schematic diagram mean followings respectively.

UL/CSA	Manufactured for U.S.A. and Canadian market. (UL: Underwriters Laboratories approval model.)
EU	Manufactured for European market.
SS	Manufactured for Saudi Arabian market.
XX (EXPORT)	Standard Version.
NON MARK	Common Parts.

2. Some printed circuit boards are not supplied assembled. To separate these in this service manual, the part numbers are not indicated for these boards. However, part numbers for individual parts are indicated.

3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.

4. Abbreviations in this service manual are as follows:

Abbreviations List

C.R.: Carbon Resistor	C.K.: Ceramic Capacitor	M.C.: Mylar Capacitor
S.R.: Semiconductor Capacitor	E.C.: Electrolytic Capacitor	V.R.: Variable Resistor
M.R.: Metal Film Resistor	E.L.: Low Leak Electrolytic Capacitor	S.V.R.:Semi-Variable Resistor
F.R.: Fusing Resistor	E.B.: Bi-Polar Electrolytic Capacitor	SW.: Switch
C.C.: Ceramic Capacitor, Temperature Compensation	E.B.L.: Low Leak Bi-Polar Electrolytic Capacitor	S.C.: Styrol Capacitor

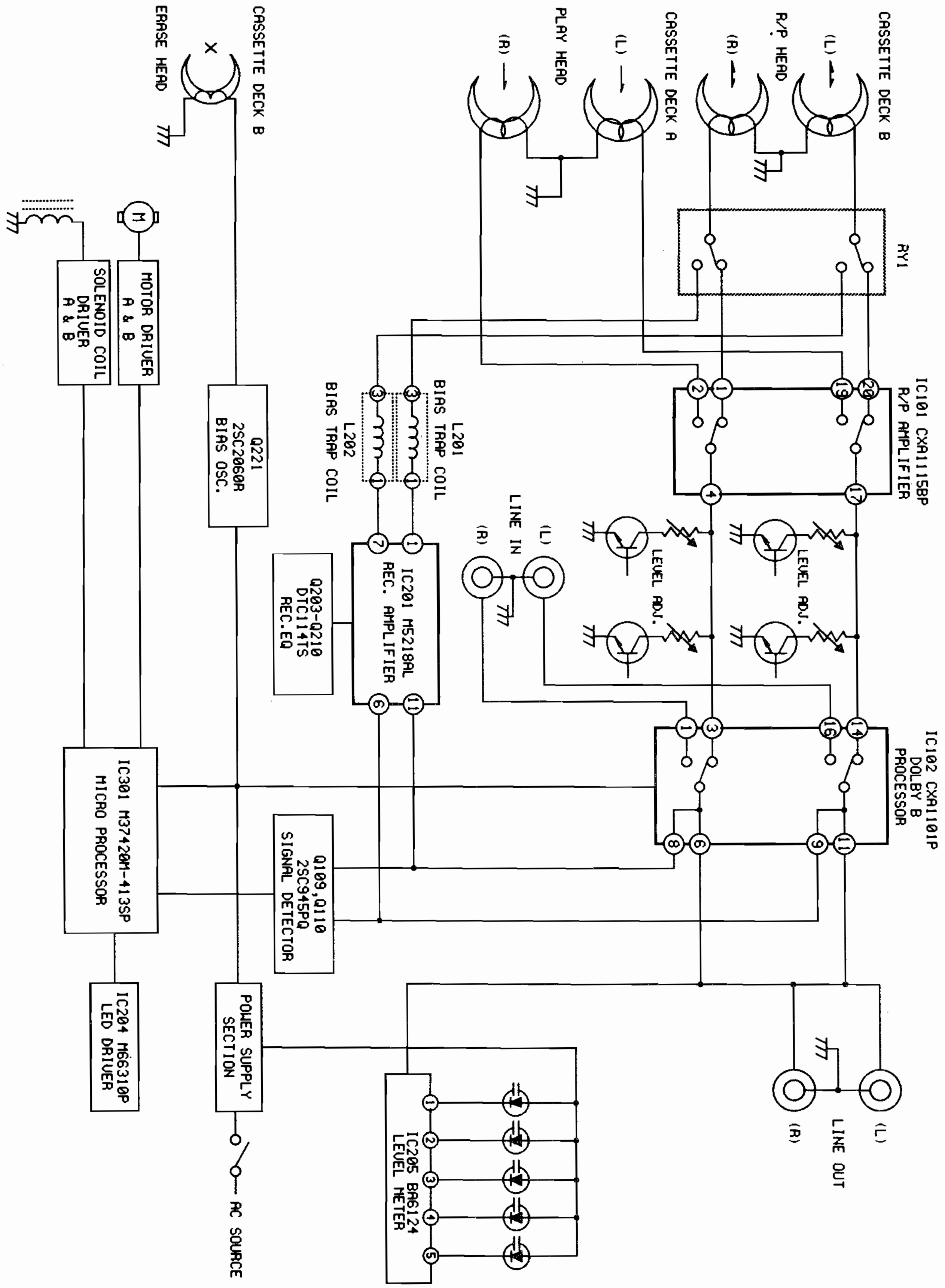
Specifications

Track format	4-track/2-channel system
Tape speed	4.8cm/sec.
Wow/flutter	0.09% max. (WRMS)
st forwarding inding) time	Approx. 110 sec. (for C-60 tape)
quency response	
Normal tape (LH)	125 to 12.500Hz ±4dB
Signal-to-noise ratio	
DOLBY NR OFF	Better than 50dB
DOLBY-B NR ON	Better than 60dB
Input sensitivity/Impedance	
LINE IN (REC)	100 mV/40k ohms
Power requirements	120/230V (50/60Hz)
For U.S.A. and Canada	120V (60Hz)
European	230V (50Hz)
Asia	115/230V (50/60Hz)

Power consumption	22 Watts
Dimensions	430 mm (16-15/16") W 132 mm (5-3/16") H 255 mm (10-1/32") D
Weight	4.4kgs (9.7lbs) net

- Design and specifications subject to change without notice for improvements.
- Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", the double–D symbol (DD) are trade marks of Dolby Laboratories Licensing Corporation.

1. BLOCK DIAGRAM


CASSETTE DECK B
(L)
(R)
R/P HEAD
CASSETTE DECK A
(L)
PLAY HEAD
(R)
CASSETTE DECK B
ERASE HEAD
RY1
IC101 CXA1115BP
R/P AMPLIFIER
1
2
19
20
4
17
LEVEL ADJ.
LEVEL ADJ.
LINE IN
(L)
(R)
IC102 CXA1101P
DOLBY B
PROCESSOR
1
3
16
14
8
6
9
11
L201
BIAS TRAP COIL
L202
BIAS TRAP COIL
IC201 M5218AL
REC. AMPLIFIER
Q203-Q210
DTC114TS
REC.EQ
Q221
2SC2060R
BIAS OSC.
M
MOTOR DRIVER
A & B
SOLENOID COIL
DRIVER
A & B
IC301 M37420M-413SP
MICRO PROCESSOR
Q109,Q110
2SC945PQ
SIGNAL DETECTOR
IC204 M66310P
LED DRIVER
POWER SUPPLY
SECTION
AC SOURCE
IC205 BA6124
LEVEL METER
LINE OUT
(L)
(R)

2. ADJUSTMENT (See Fig. 2-6 Adjustment Points on page 5)

2-1. Tape Speed Adjustment

Notes: 1. Use TEAC Test Tape, MTT-111
(3kHz signals are recorded on the tape).
2. Connections are shown in Fig. 2-1.

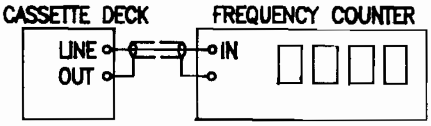


Fig. 2-1

(1) High Speed Adjustment (For Deck A)

Notes: 1. Set the DUBBING switch .... ON
2. Set the NORMAL/HIGH switch .... HIGH

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	High Speed Adj.	LINE OUT Frequency counter Connected to TP8 (TP7) and GND.	1. Short between test point TP14 & Chassis Gnd (See Fig. 2-6). 2. Playback the Test Tape MTT-111 A side Mecha.	Turn the SFR303 on the Main board (See Fig. 2-6).	5.4 kHz +3% 5.4 kHz -2%	Repeat the adjustment for optimum result.

(2) Normal Speed Adjustment (For Deck A)

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	Normal Speed Adj.	LINE OUT Frequency counter Connected to TP8 (TP7) and GND.	1. Open test pin TP14 & Chassis Gnd. 2. Playback the Test Tape MTT-111 B side Mecha.	Turn the SFR304 on the Main board (See Fig. 2-6).	3 kHz +3% 3 kHz -2%	Repeat the adjustment for optimum result.

(3) High Speed Adjustment (For Deck B)

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	High Speed Adj.	LINE OUT Frequency counter Connected to TP8 (TP7) and GND.	1. Short between test point TP13 & Chassis Gnd (See Fig. 2-6). 2. Playback the Test Tape MTT-111 A side Mecha.	Turn the SFR301 on the Main board (See Fig. 2-6).	5.4 kHz +3% 5.4 kHz -2%	Repeat the adjustment for optimum result.

(4) Normal Speed Adjustment (For Deck B)

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	Normal Speed Adj.	LINE OUT Frequency counter Connected to TP8 (TP7) and GND.	1. Open test pin TP13 & Chassis Gnd. 2. Playback the Test Tape MTT-111 B side Mecha.	Turn the SFR302 on the Main board (See Fig. 2-6).	3 kHz +3% 3 kHz -2%	Repeat the adjustment for optimum result.

2-2. Playback Adjustment

Notes:
1. Before this adjustment, clean REC/P.B. head surface.
2. For this adjustment, use TEAC Test Tape, MTT-114NA and MTT-150.
3. Set the Dolby NR switch to OFF.
4. Connections are shown in Fig. 2-2.

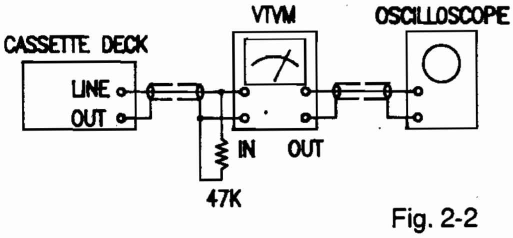


Fig. 2-2

(1) a-Side Mecha. Adjustment

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	P.B. Head Adj.	LINE OUT VTVM and Scope	Playback the TEST TAPE MTT-114NA (Forward)	Adjust the azimuth adjusting screw 1 in Fig. 2-3.	Max. Output both channels.	After this adj., Lock the screw with paint.
2	Playback Level Adj.	Same as above	Playback the TEST TAPE MTT-150	Adjust each SFR101(L) and SFR102(R), Main board.	548mV ±0.5dB	

(2) b-Side Mecha. Adjustment

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	REC/P.B. Head Adj.	LINE OUT VTVM and Scope	Playback the TEST TAPE MTT-114NA (Forward)	Adjust the azimuth adjusting screw 1 in Fig. 2-4.	Max. Output both channels.	After this adj., Lock the screw with paint.
2	REC/P.B. Head Adj.	LINE OUT VTVM and Scope	Playback the TEST TAPE MTT-114NA (Reverse)	Adjust the azimuth adjusting screw 2 in Fig. 2-4.	Max. Output both channels.	After this adj., Lock the screw with paint.
3	Playback Level Adj.	Same as above	Playback the TEST TAPE MTT-150	Adjust each SFR103(L) and SFR104(R), Main board.	548mV ±0.5dB	

2-3. Bias Adjustment

Notes:
1. For, this adjustment, use TEAC Test Tape, MTT-5521.
2. Set the Dolby NR switch ... OFF
3. REC LEVEL volume .... MAX.
4. Connections are shown in Fig. 2-1.

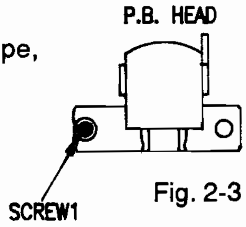


Fig. 2-3

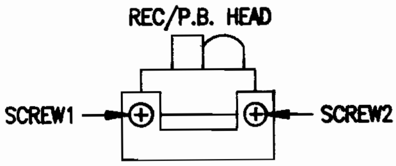


Fig. 2-4

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	Bias Frequency Adj.	Between Point TP6 and TP5 for Frequency counter.	1. Load the TEST TAPE MTT-5521. 2. REC/MUTE button on. 3. Push the REC & PLAY button.	Turn the core of L205 (Main board)	105kHz ±5kHz	See Fig. 2-6.

2-4. Trap Coil Adjustment

Notes:
1. Connections are shown Fig. 2-2.
2. Use TEAC Test Tape MTT-5521.

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	Trap Coil Adj.	Between test point TP7 and GND L-CH, Test point TP8 and GND R-CH. Volt meter and Scope.	1. Load the TEST TAPES MTT-5521 into deck A & B. 2. Push the REC & PLAY button for deck B. 3. Push the PLAY button for deck A.	Turn the core of L101 L-CH, L102 R-CH. (Main board)	Min. Output both channels.	See Fig. 2-6.

2-5. Bias Current Adjustment

Notes: TEAC Test Tape MTT-5521 (Normal).

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1	Normal Tape	VTVM connected to TP2 & TP1.	Normal Tape REC.	SFR201	Adjust for 7mV
		VTVM connected to TP4 & TP3.	Normal Tape REC.	SFR202	Adjust for 7mV

2-6. Peak Level Meter Adjustment (B-Side Mecha. Only)

Notes: 1. Set the REC LEVEL volume to be Max. position.
2. Use TEAC Test Tape MTT-150.

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	Peak Level Meter Adj.	Peak Level Meter O/P=548mV ±0.5dB	Playback the Test Tape MTT-150.	Adjust SFR105 (Main board)	Lighten the 3th LED (0dB) of Peak Level Meter.	

2-7. Record Level Adjustment

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1	REC. Level Adj.	VTVM & Scope connected to pin TP7, GND and TP8.	1. Push the REC & PLAY button 2. Dolby OFF 3. Line I/P 400Hz, 100mV	Adjust SFR203 & SFR204.	PLAY level =REC level	Spec.: +0-3dB

2-8. Filter Adjustment (B-Side Mecha. Only)

Notes: 1. Set the REC LEVEL volume to be Max. position.
2. Connections are shown in Fig. 2-5.
3. VTVM connected to TP7(L), TP8(R) & GND.

STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1	19kHz Filter Adj.	Feed 19kHz from Audio S.G. into LINE IN.	LINE OUT VTVM and Scope.	1. Push the REC and PLAY button. 2. Push REC/MUTE button.	Turn the core of L103 L-CH and L104 R-CH. Min. Output both channels.	See. Fig. 2-6.

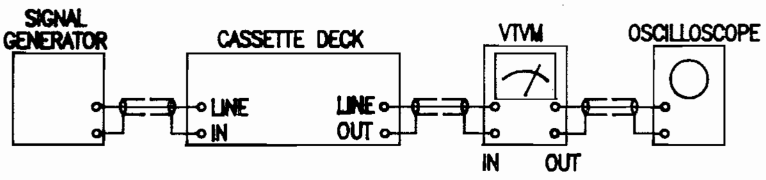
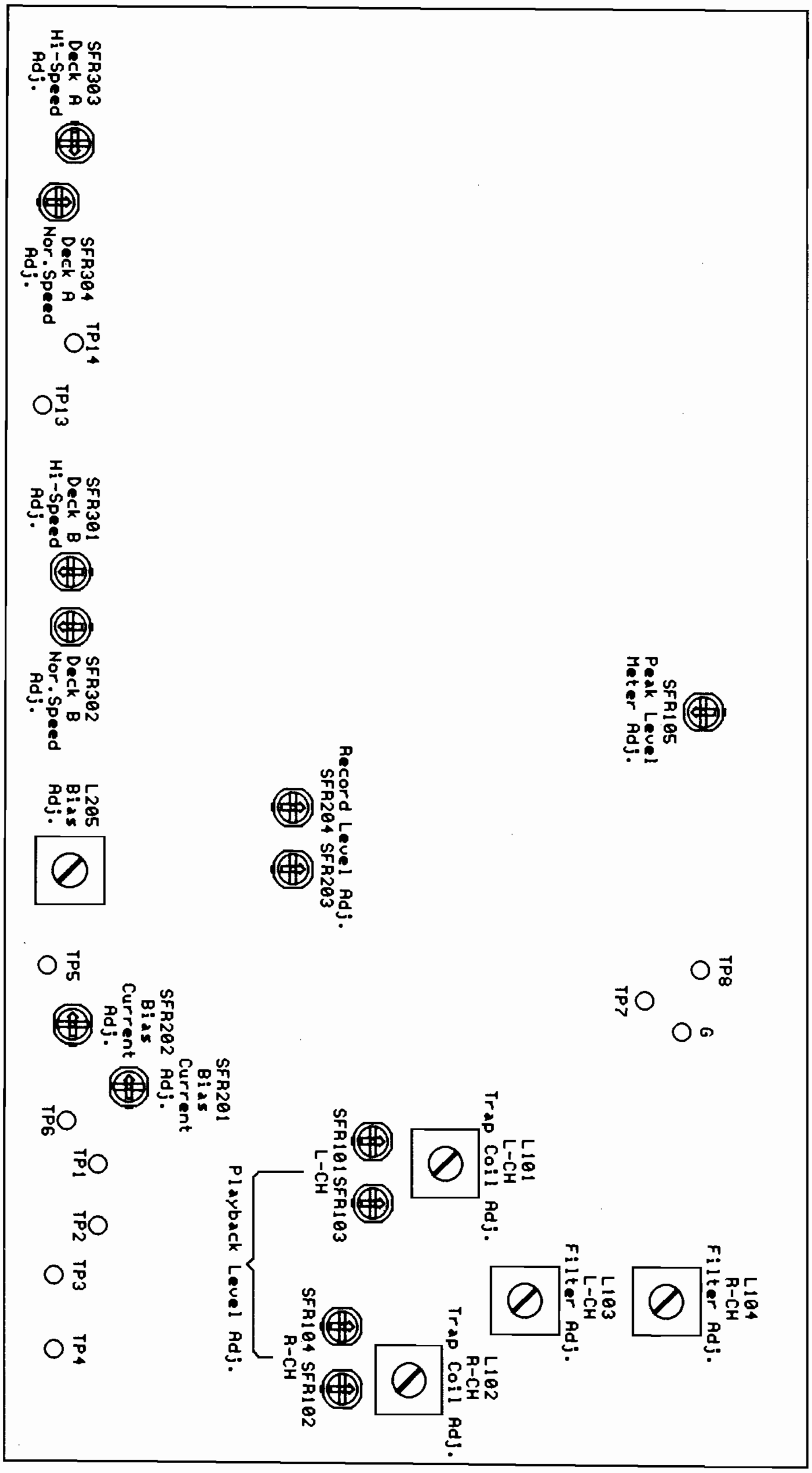


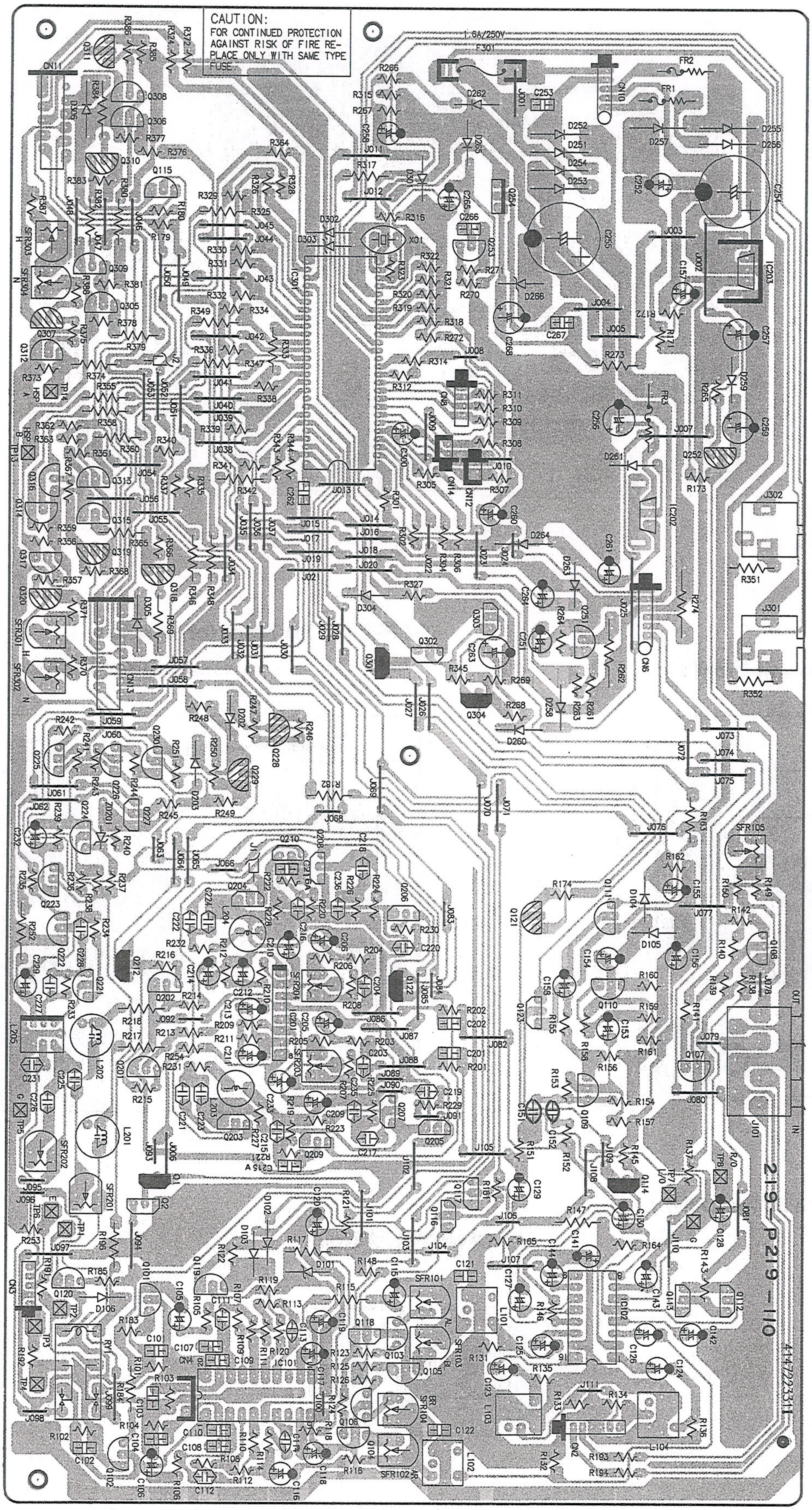
Fig. 2-5

Fig. 2-6 Adjustment points on Main board


SFR303 Deck A Hi-Speed Adj.
SFR304 Deck A Nor.Speed Adj.
TP14
TP13
SFR301 Deck B Hi-Speed Adj.
SFR302 Deck B Nor.Speed Adj.
L205 Bias Adj.
TP5
SFR202 Bias Current Adj.
SFR201 Bias Current Adj.
TP6
TP1
TP2
TP3
TP4
Record Level Adj.
SFR204 SFR203
SFR101 SFR103 L-CH
Playback Level Adj.
SFR104 SFR102 R-CH
L101 L-CH Trap Coil Adj.
L102 R-CH Trap Coil Adj.
L103 L-CH Filter Adj.
L104 R-CH Filter Adj.
SFR105 Peak Level Meter Adj.
TP8
TP7
G

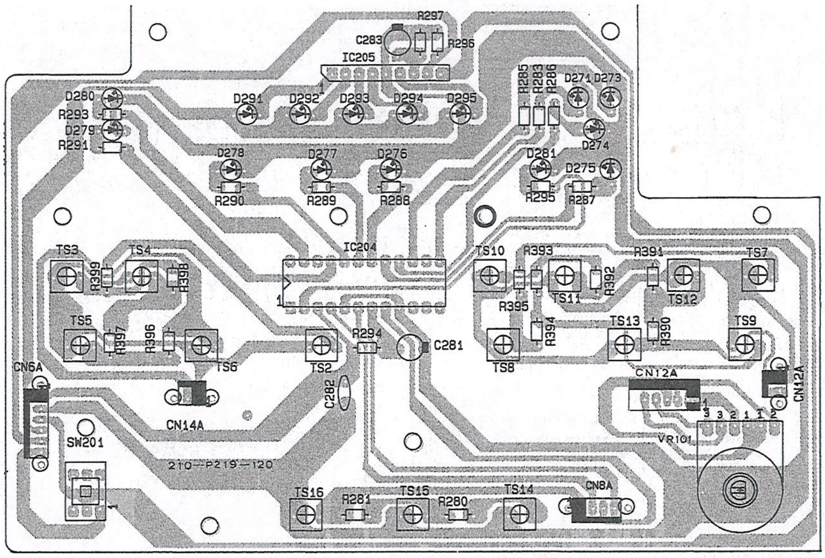
3. PARTS LOCATION ON BOARD

3-1. Main Board Component Side


CAUTION:
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE ONLY WITH SAME TYPE FUSE.
1.6A/250V
F301
FR1
FR2
CN11
CN10
CN6
CN13
CN14
CN12
CN8
CN4
CN3
IC203
IC202
IC101
J301
J302
J101
OUT
IN
SFR101
SFR102
SFR103
SFR104
SFR105
SFR201
SFR202
SFR203
SFR204
SFR301
SFR302
SFR303
SFR304
L101
L102
L103
L104
L201
L202
L203
L204
L205
X01
C254
C255
R351
R352
2I9-P2I9-IIO
414722311

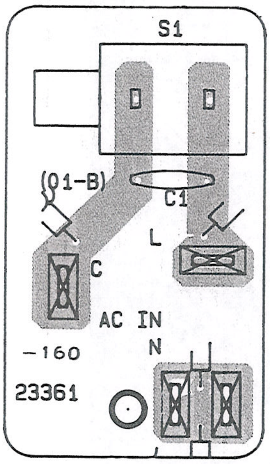
3-2. Front Board

Component Side


R297
C283
R296
IC205
D280
R293
D279
R291
D291
D292
D293
D294
D295
R285
R283
R286
D271
D273
D274
D278
D277
D276
D281
D275
R290
R289
R288
R295
R287
TS3
TS4
R399
R398
IC204
TS10
R393
R391
TS7
R395
TS11
R392
TS12
TS5
R397
R396
TS6
R294
C281
R394
TS13
R390
TS9
TS2
TS8
CN6A
CN14A
C282
CN12A
CN12A
VR101
SW201
210-P219-120
TS16
R281
TS15
R280
TS14
CN8A

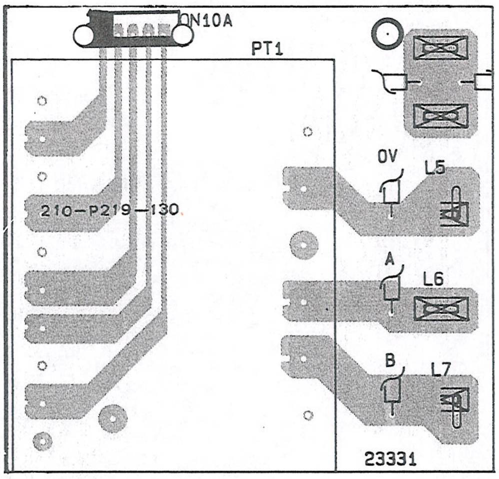
3-3. Power Switch

Component Side


S1
(01-B)
C1
L
C
AC IN
N
-160
23361

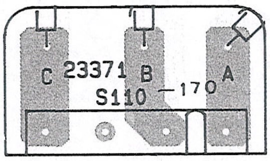
3-4. Power Transformer Board

Component Side


CN10A
PT1
210-P219-130
OV
L5
A
L6
B
L7
23331

3-5. Change Switch Board (SS,XX)

Component Side


C
23371
B
A
S110
-170

4. PARTS LIST OF BOARD

4-1. Main Board

Ref. No.	Part No.	Description
*** Transistor**		
Q101–111	170-H57C945P	2SC945P NEC
Q112,113	170-H97C114TS	DTC114TS ROHM
Q114	170-H98A144ES	DTA144ES ROHM
Q115	170-H57C945P	2SC945P NEC
Q116–118	170-H97C124ES	DTC124ES ROHM
Q119	170-H57C945P	2SC945P NEC
Q120	170-H572001L	2SC2001L NEC
Q121	170-H58A733P	2SA733P NEC
Q122	170-H98A144ES	DTA144ES ROHM
Q123	170-H97C124ES	DTC124ES ROHM
Q201,202	170-H57C945P	2SC945P NEC
Q203–210	170-H97C114TS	DTC114TS ROHM
Q212	170-H98A144ES	DTA144ES ROHM
Q221	170-H972060R	2SC2060R ROHM
Q222	170-H572001L	2SC2001L NEC
Q223	170-H972060R	2SC2060R ROHM
Q224–226	170-H57C945P	2SC945P NEC
Q227	170-H97C114TS	DTC114TS ROHM
Q228	170-H58A952L	2SA952L NEC
Q229	170-H58A733P	2SA733P NEC
Q230	170-H57C945P	2SC945P NEC
Q251	170-H572001L	2SC2001L NEC
Q252	170-H58A733P	2SA733P NEC
Q253	170-H57C945P	2SC945P NEC
Q254	170-H51D471L	2SD471L NEC
Q301	170-H98A124ES	DTA124ES ROHM
Q302,303	170-H97C124ES	DTA124ES ROHM
Q304	170-H98A124ES	DTA124ES ROHM
Q305,306	170-H57C945P	2SC945P NEC
Q307	170-H58A733P	2SA733P NEC
Q308,309	170-H57C945P	2SC945P NEC
Q310,311	170-H58A952L	2SA952L NEC
Q312–317	170-H57C945P	2SC945P NEC
Q318,319	170-H58A952L	2SA952L NEC
Q320	170-H58A733P	2SA733P NEC
*** IC**		
IC101	160-H3A32460	LA3246 SANYO
IC102	160-HMA1101P	CXA1101P SONY
IC201	160-H4M5218AL	M5218AL MITSUBISHI
IC202 ⚠	160-H6M78M05FA	NJM78M05FA JRC
IC203 ⚠	160-H6M78M15A	NJM78M15A JRC
IC301	160-H43742013	M37420M-413SP MITSUBISHI
*** Diode**		
D101	150-10621A	UZ 6.2BM-T
D102–105	151-41481A	1N4148
D106	151-01420A	1SS142
D201	150-50302A	UZ 3.0B-T
D202,203	151-41481A	1N4148
D251–257 ⚠	151-400211	1N4002 100V
D258,259	151-41481A	1N4148
*** Diode**		
D260	151-01420A	1SS142
D261–263	151-41481A	1N4148
D264	151-400211	1N4002 100V
D265	151-41481A	1N4148
D266	150-111011	UZ 11BM
D301	151-41481A	1N4148
D302,303	150-50512A	UZ 5.1B-T
D304	151-41481A	1N4148
D305,306	151-400211	1N4002 100V
*** Coil**		
L101,102	219-533514	Trap Filter TWS-358-694
L103,104	219-533505	Dolby Filter TWS-358-682
L201,202	219-531105	Trap Coil TWS-358-681
L203,204	141-LSL392K	Inductance 392K
L205	220-432803	Bais Osc Coil TWS-358-693
*** Resonator**		
X01	132-800001	0X3 CST8.00MTW
*** Relay**		
RY1	221-0VR212L	RL4 2T 0VR-SH-212L
*** VR**		
SFR101,102	101-203220	VR 20KB
SFR103,104	101-503221	VR 50KB
SFR105	101-104221	VR 100KB
SFR201,202	101-104221	VR 100KB
SFR203,204	101-103226	VR 10K OHM
SFR301–304	101-103226	VR 10K OHM
*** Jack**		
J101	203-JT10420	4P RCA JACK RJ1042-01-30B
J301,302	203-YKB215130	3.5Q JACK YKB21-5130
*** Fuse Resistor**		
FR1,2 ⚠	116-R502R2JK4	F/R 2.2 OHM 1/2W
FR3 ⚠	116-R25100JK3	F/R 10 OHM 1/4W
*** Capacitor**		
C101,102	134-CB471K6T	T/C 470pF 50V
C103,104	134-CB331K6T	T/C 330pF 50V
C105,106	120-EG226M3T	E/C 22uF 16V
C107–110	134-CB331K6T	T/C 330pF 50V
C111,112	123-C103J6T	M/C 0.01uF 50V
C113,114	123-C183J6T	M/C 0.018uF 50V
C115,116	120-EG475M6T	E/C 4.7uF 50V
C117	120-EG107M1T	E/C 100uF 10V
C118	120-EG475M6T	E/C 4.7uF 50V
C119	120-EG107M1T	E/C 100uF 10V
C120	120-EG105M6T	E/C 1.0uF 50V
C121,122	134-CX222K3T	T/C 0.0022uF 16V
C123–126	120-EG105M6T	E/C 1.0uF 50V
C127–130	120-EG475M6T	E/C 4.7uF 50V
C141,142	120-EG107M3T	E/C 100uF 16V
C141A	120-EG106M3T	E/C 10uF 16V

4-1. Main Board

Ref.No.	Part No.	Description
*** Capacitor**		
C143,144	120-EG684M6T	E/C 0.68uF 50V
C151,152	117-CX473K4T	S/R 0.047uF 25V
C153–155	120-EG105M6T	E/C 1.0uF 50V
c156,157	120-EG107M3T	E/C 100uF 16V
C158	120-EG476M3T	E/C 47uF 16V
C201,202	134-CB331K6T	T/C 330pF 50V
C203,204	123-C562J6T	M/C 0.0056uF 50V
C205,206	120-EG106M4T	E/C 10uF 25V
C209,210	120-EG476M3T	E/C 47uF 16V
C211,212	120-EG204M6T	E/C 0.2uF 50V
C213,214	120-EG106M4T	E/C 10uF 25V
C215,216	123-C153J6T	M/C 0.015uF 50V
C215A,216A	123-C563J6T	M/C 0.056uF 50V
C217,218	123-C223J6T	M/C 0.022uF 50V
C219,220	123-C472J6T	M/C 0.0047uF 50V
C221,222	123-C123J6T	M/C 0.012uF 50V
C223,224	123-C822J6T	M/C 0.0082uF 50V
C225,226	119-C7151J6T	C/C 150pF 50V
C227	123-C103J6T	M/C 0.01uF 50V
C228	123-C223J6T	M/C 0.022uF 50V
C229	120-EG476M3T	E/C 47uF 16V
C229A	120-EG226M3T	E/C 22uF 16V
C231	123-C822JDT	M/C 0.0082uF 200V
C232	120-EG476M3T	E/C 47uF 16V
C233	120-EG107M3T	E/C 100uF 16V
C235,236	123-C333J6T	M/C 0.033uF 50V
C251	120-EG475M6T	E/C 4.7uF 50V
C252 ⚠	120-EG107M5T	E/C 100uF 35V
C253	134-CF223Z4T	T/C 0.022uF 25V
C254 ⚠	120-EG228M5S	E/C 2200uF 35V
C255	120-EG478M4S	E/C 4700uF 25V
C256 ⚠	120-EG107M4T	E/C 100uF 25V
C257	120-EG107M3T	E/C 100uF 16V
C258	120-EG106M4T	E/C 10uF 25V
C259	120-EG227M3T	E/C 220uF 16V
C260,261	120-EG105M6T	E/C 1.0uF 50V
C262	134-CF223Z4T	T/C 0.022uF 25V
C263	120-EG107M5T	E/C 100uF 35V
C264	120-EG107M1T	E/C 100uF 10V
C265	120-EG225M6T	E/C 2.2uF 50V
C266,267	134-CF223Z4T	T/C 0.022uF 25V
C268	120-EG107M3T	E/C 100uF 16V
C300	120-EG475M6T	E/C 4.7uF 50V

4-2. Front Board

Ref. No.	Part No.	Description
*** Diode**		
D271	153-DEL1254GTA	EL1254GT-TR2-9 GRN
D273	153-DEL1254GTA	EL1254GT-TR2-9 GRN
D274	153-DEL1254YTA	EL1254YT-TR2-9 ABR
D275–278	153-DEL204ITA	EL204IT-TR2-9 RED
D279	153-DEL1254YTA	EL1254YT-TR2-9 ABR
D280	153-DEL1254GTA	EL1254GT-TR2-9 GRN
D281	153-DEL204ITA	EL204IT-TR2-9 RED
D291–293	153-DEL1254YTA	EL1254YT-TR2-9 ABR
D294,295	153-DEL204ITA	EL204IT-TR2-9 RED
*** IC**		
IC204	160-H4M66310P	M66310P 24P MITSUBISHI
IC205	160-H9A61240	BA6124 9P ROHM
*** VR**		
VR101	104-503106	VR 50KAx2 RK16K12D0028
*** Capacitor**		
C281	135-E7106M4T	E/C 10uF 25V
C282	134-CF223Z4T	T/C 0.022uF 25V
C283	135-E7106M4T	E/C 10uF 25V
*** Switch**		
S201	202-SV2285	Switch JTP-2285
TS2–16	202-T08005KT	Tact Switch SKHVBE3520-DK

4-3. Power Switch Board

Ref. No.	Part No.	Description.
*** Capacitor**		
C1 ⚠	122-CZ472ZFS	C/K 4700pF 400V
*** Switch**		
S1 ⚠	202-07LB1017U	Power switch SDDLB1017U

4-4. Power Transformer Board

Ref. No.	Part No.	Description.
– ⚠	200-PT54219B	Power x'former EI-54 (XX,SS)
– ⚠	200-PT54219UL	Power x'former EI-54 (UL)
– ⚠	200-PT54219BEU	Power x'former EI-54 (EU)

4-5. Change Switch Board (XX,SS)

Ref. No.	Part No.	Description.
S110 ⚠	202-HXW03511	Voltage Selector Switch HXWS0351-910010

5. MAIN PARTS REPLACEMENT (See Exploded of Cabinet on Page 14)

5-1. Mechanism Assembly

1) Remove 8 screws (10/52) to remove the top cover (51).
2) Remove 5 screws (10) and remove the front escutcheon (9) from the bottom cabinet (38).
3) Remove the record VR knob (6) and VR nut.
4) Remove 9 screws (19) and remove the front PCB assembly (22).
5) Remove the counter belt (17).
6) Press the eject button (L) & (R) to open the L and R cassette doors.
7) Remove 4 screws (10) and 4 screws (19) and remove the mechanism assembly (32 & 33) from the front escutcheon (9).

5-2. Cassette door L and R

1) Remove the mechanism assembly (32 & 33). (Refer to the mechanism assembly replacement above)
2) Remove the gear damper (28).
3) Remove the door spring L (31) and R (30).
4) Remove 8 screws (19) and remove the deck holder (29) from the front escutcheon (9).
5) Remove the cassette door L (5) and R (4) from the front escutcheon (9).

6. PARTS LIST OF CABINET & MECHANISM

6-1. Cabinet

Ref. No.	Part No.	Description
1	401-LW219	LED Window
2	401-DW219R	Door Window (R)
3	401-DW219L	Door Window (L)
4	400-DR219	Cass Door (R)
5	400-DL219	Cass Door (L)
6	400-RL219	Rec Level Knob
7	400-PB219	Power Button
8	610-M219	Tape Mirror
9	400-FP219	Deck Front Panel
10	307-B1300800	Screw B-Tite M3x8 Yellow-Bind
11	400-DB219	Dubbing Button
12	400-SL219	Dolby Button
13	400-KA219	Cass Key A
14	400-KB219	Cass Key B
15	400-KC219A	Cass Key C-A
15a	400-KC219B	Cass Key C-B
16	256-TC219	Counter T3SA100-160-703
17	430-BT219	Belt ϕ39x0.8t
18	350-CN219	Counter Holder
19	306-B1301000	Screw P-Tite M3x10 Yellow-Bind
20	429-RP119	Rubber Pad
21	306-B1300809	Screw P-Tite M3x8 Ylw-Bind Washer
22	210-P219-120	Front PCB
23	400-EB219R	Eject Button (R)
24	400-EB219L	Eject Button (L)
25	351-ES219	Eject Spring
26	401-EV219R	Eject Level (R)
27	401-EV219L	Eject Level (L)
28	416-A160	Gear Damper GD-21
29	350-DH219	Deck Holder
30	351-SP219R	Door Spring (R)
31	351-SP219L	Door Spring (L)
32	207-CRF408	Cass Deck CRF-408
33	207-CFF403	Cass Deck CFF-403
34	400-EH219	Holder
35	401-PL219	Power Lever
36	210-P219-140	Power Switch PCB
37 ⚠	202-07LB1017U	Power Switch SDDLB1017U
38	350-BB219	Bottom Board
39	429-A219	PCB Sponge
40	400-TF119B	Tuner Foot (B)
41	400-TF119A	Tuner Foot (A)
42	412-A219	PCB Supp. PS-04GA 12.7mm
43	210-P219-110	Main PCB
44 ⚠	200-PT54219B	Pwr X'former EI-51(B) (SS,XX)
⚠	200-PT54219BUL	Power X'former EI-51(B) (UL)
⚠	200-PT54219BEU	Power X'former EI-51(B) (EU)
45	210-P219-130	Power X'former PCB
46	310-A2060	Gear Nut M4 Yellow
47	302-B1401000	Mach. Screw M4x10 Ylw-Bind
48	406-C420	AC Cord Bushing
49 ⚠	181-207021	AC Cord 7' SP-12N (SS,XX)
⚠	181-207002	AC Cord 7' SPT-2 (UL)
⚠	181-G2060	AC Cord 7' CEE LP-21 (EU)
50	350-RP219XX	Rear Panel (XX)
	350-RP219UL	Rear Panel (UL)
	350-RP219EU	Rear Panel (EU)
51	350-PC219	Top Cover
52	307-B8300800	Screw B-tite M3x8 Blk-Bind
53	202-HXW03511	Voltage Selector Switch HXWS0351-910010(XX Only)
54	400-VH219	V-Switch Holder (XX Only)

6-2. Mechanism (For Deck A) Part No. 207-CFF403

Ref. No.	Part No.	Description
1	06-MS15RAA4N1	R/P Head
2	PBE16618	Dummy Head
6	22-093-4053	Ass'y Arm Assist
7	22-160-4017	Spring Cassette
8	22-261-4043	Eject Lock
9	22-222-4041	Cap Reel
10	22-112-2075	Chassis Head
11	22-093-4150	Ass'y Pinch Arm R
12	22-239-3256	Arm Play R
13	22-222-4282	Gear Play
14	22-210-1147	Chassis OS.
15	22-222-3030	Reel Gear
16	07-W021C or 22-093-4419	Solenoid
17	22-072-4105	Wire
18	22-222-4048	Gear FF
19	22-093-4061	Ass'y Arm FR
20	22-093-3060	Ass'y Pulley FR
21	22-083-4059	Belt FR
22	22-239-3028	Arm Brake
23	22-093-4151	Ass'y Sub Reel R
24	22-268-3008	Arm Triger
25	22-221-2090	Gear Cam
26	PBE16449	Metal
27	22-093-3050	Ass'y Flywheel R
28	16-262-4030	Metal
29	16-072-4313	Wire (11P)
30	16-219-2382	Holder Wire
31	22-070-3018	P.C. Board
32	04-SW150 or 04-MPU10101MMB0	Switch Mode
33	04-MTS10041MVL0	Switch (Leaf)
34	00-DN6851A or 00-LB9051A	Hall IC.
35	22-119-2016	Bracket FW
37	22-093-4055	Ass'y Motor
38	16-072-4056	Wire
39	02-083-4066	Belt Main
61	01-081-4287	Spring
62	01-082-4250	Spring
63	01-081-4257	Spring
64	01-081-4258	Spring
65	01-082-4252	Spring
66	01-082-4254	Spring
67	01-082-4261	Spring
68	01-082-4283	Spring
69	01-081-4309	Spring
81	03-300-4127	Screw
82	PGSD20A2006	Screw
83	PGSE10A2004	Screw
84	PGSE20A2016	Screw
85	PGSL15A2608	Screw
86	PGSP11A2604	Screw
102	PGWP16X040025	Washer
103	PGWP26X042013	Washer

6-2. Mechanism (For Deck A) Part No. 207-CFF403

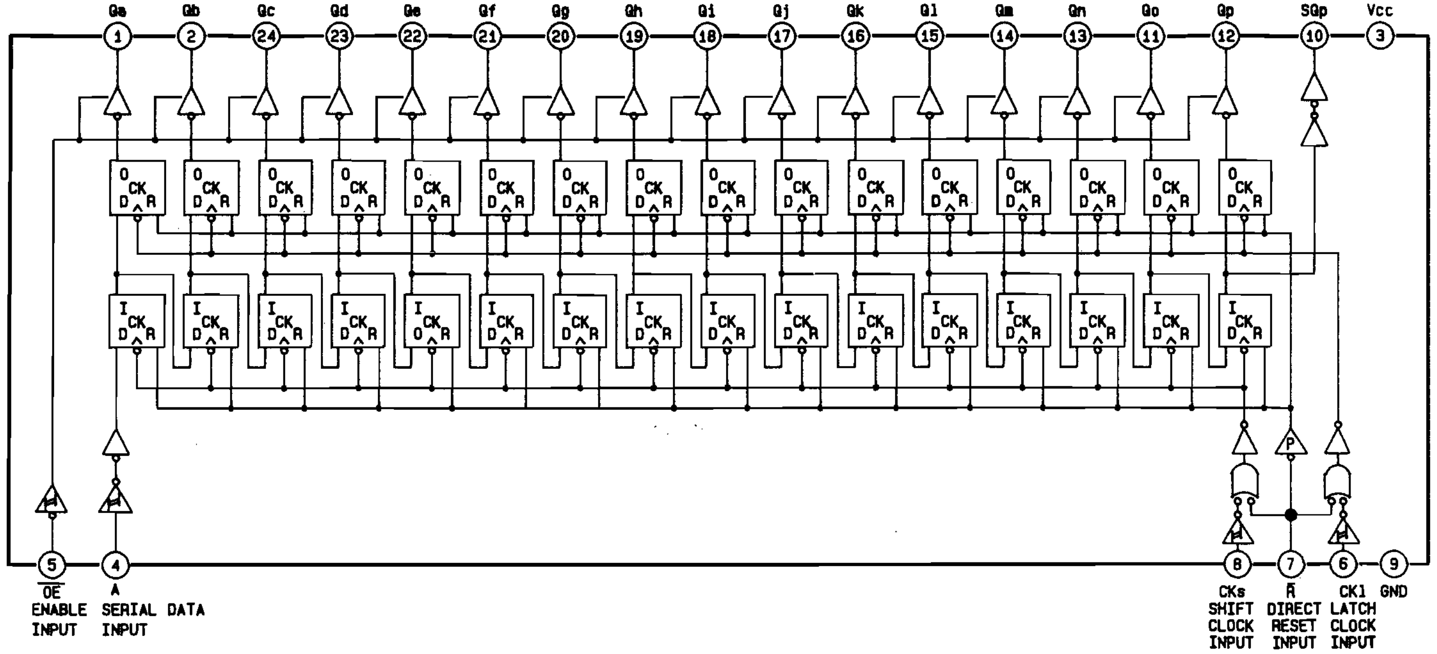
Ref. No.	Part No.	Description
1	06-MS15RAA4N1	R/P Head
2	PBE16618	Dummy Head
6	22-093-4053	Ass'y Arm Assist
7	22-160-4017	Spring Cassette
8	22-261-4043	Eject Lock
9	22-222-4041	Cap Reel
10	22-112-2075	Chassis Head
11	22-093-4150	Ass'y Pinch Arm R
12	22-239-3256	Arm Play R
13	22-222-4282	Gear Play
14	22-210-1147	Chassis OS.
15	22-222-3030	Reel Gear
16	07-W021C or 22-093-4419	Solenoid
17	22-072-4105	Wire
18	22-222-4048	Gear FF
19	22-093-4061	Ass'y Arm FR
20	22-093-3060	Ass'y Pulley FR
21	22-083-4059	Belt FR
22	22-239-3028	Arm Brake
23	22-093-4151	Ass'y Sub Reel R
24	22-268-3008	Arm Triger
25	22-221-2090	Gear Cam
26	PBE16449	Metal
27	22-093-3050	Ass'y Flywheel R
28	16-262-4030	Metal
29	16-072-4313	Wire (11P)
30	16-219-2382	Holder Wire
31	22-070-3018	P.C. Board
32	04-SW150 or 04-MPU10101MMB0	Switch Mode
33	04-MTS10041MVL0	Switch (Leaf)
34	00-DN6851A or 00-LB9051A	Hall IC.
35	22-119-2016	Bracket FW
37	22-093-4055	Ass'y Motor
38	16-072-4056	Wire
39	02-083-4066	Belt Main
61	01-081-4287	Spring
62	01-082-4250	Spring
63	01-081-4257	Spring
64	01-081-4258	Spring
65	01-082-4252	Spring
66	01-082-4254	Spring
67	01-082-4261	Spring
68	01-082-4283	Spring
69	01-081-4309	Spring
81	03-300-4127	Screw
82	PGSD20A2006	Screw
83	PGSE10A2004	Screw
84	PGSE20A2016	Screw
85	PGSL15A2608	Screw
86	PGSP11A2604	Screw
102	PGWP16X040025	Washer
103	PGWP26X042013	Washer

6-3. Mechanism (For Deck B) Part No. 207-CRF408

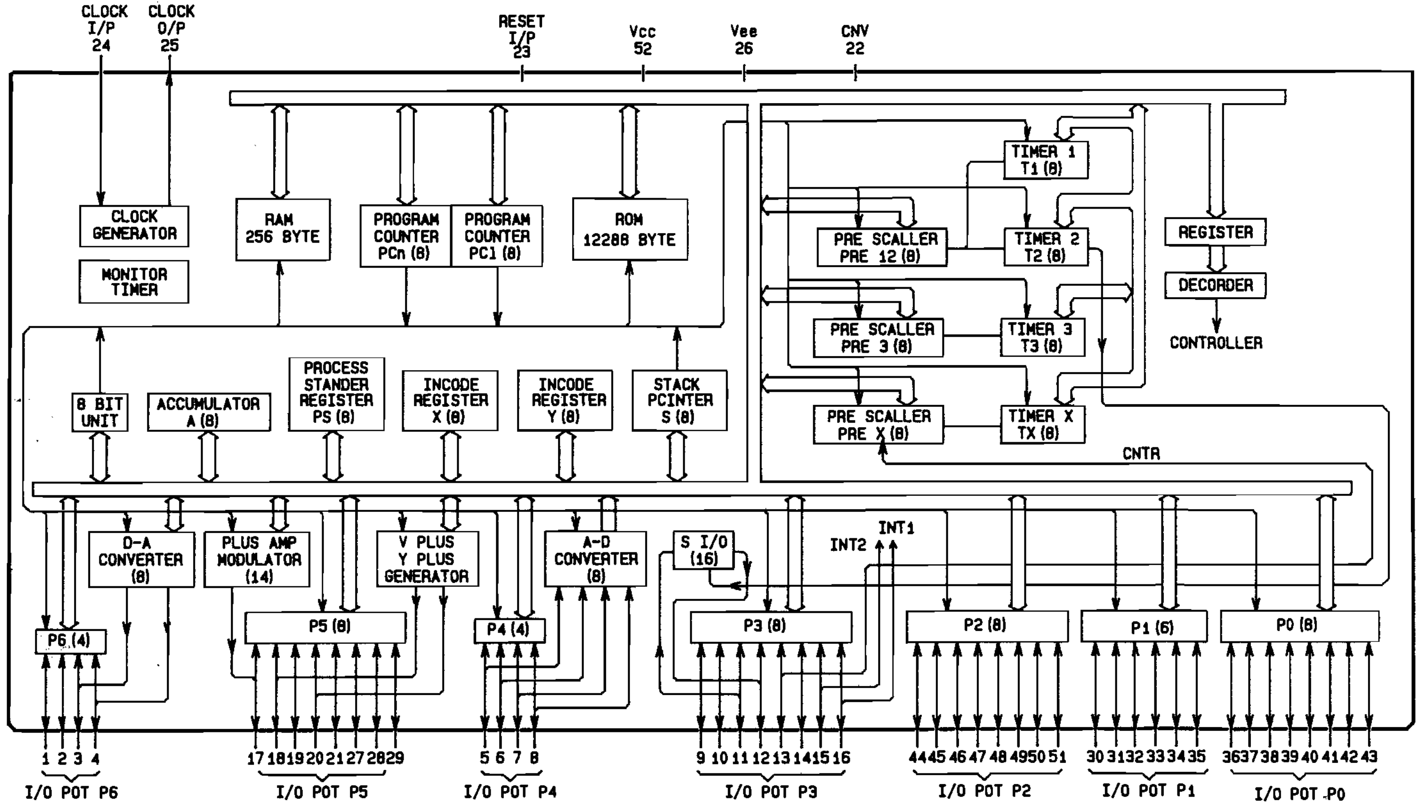
Ref. No.	Part No.	Description
1	22-093-4054	Ass'y Holder Head
2	22-219-1026	Flame Head
3	22-259-2012	Lever Head
4	16-160-4032	Spring Azimuth
5	22-093-4053	Ass'y Arm Assist
6	22-239-4020	Gear Arm Head
7	22-160-4017	Spring Cassette
8	22-261-4043	Eject Lock
9	22-222-4041	Cap Reel
10	22-093-4149	Ass'y Pinch Arm L
11	22-112-2022	Chassis Head
12	22-093-4150	Ass'y Pinch Arm R
13	22-239-3257	Arm Play L
14	22-222-4282	Gear Play
15	22-239-3256	Arm Play R
16	22-210-1023	Chassis OS.
17	22-093-3071	Ass'y Sub Reel L
18	07-W021C or 22-093-4419	Solenoid
19	22-072-4105	Wire
20	22-239-3010	Arm RVS
21	22-222-4048	Gear FF
22	22-093-4061	Ass'y Arm FR
23	22-093-3060	Ass'y Pulley FR
24	02-083-4059	Belt FR
25	22-262-4033	Metal
26	22-093-3740	Ass'y Flywheel L
27	16-262-4031	Metal
28	22-239-3028	Arm Brake
29	22-093-4151	Ass'y Sub Reel R
30	22-268-3008	Arm Triger
31	22-221-2090	Gear Cam
32	PBE16449	Metal
33	22-093-3587	Ass'y Flywheel R
34	16-262-4030	Metal
35	22-072-4080	Wire (13P)
36	16-219-2382	Holder Wire
37	22-070-3018	P.C. Board
38	04-SW150 or 04-MPU10101MMB0	Switch Mode
39	04-MTS10041MVL0	Switch (Leaf)
40	00-DN6851A or 00-LB9051A	Hall IC.
41	22-119-2016	Bracket FW
43	22-093-4530	Ass'y Motor
44	16-072-4056	Wire
45	02-084-4078	Belt Main
46	22-070-4046	P.C. Board
47	00-S5BEH	Housing
61	01-080-4251	Spring
62	01-080-4249	Spring
63	01-082-4250	Spring
64	01-081-4257	Spring
65	01-082-4253	Spring
66	01-082-4261	Spring
67	01-082-4252	Spring
68	01-081-4258	Spring
69	01-082-4254	Spring
70	01-082-4262	Spring
71	01-080-4260	Spring
72	01-081-4413	Spring
73	01-081-4309	Spring
81	03-300-4056	Screw
82	PGSU20A2005	Screw
83	03-300-4043	Screw
84	PGSE10A2004	Screw
85	PGSE20A2016	Screw
86	PGSL15A2608	Screw
87	PGSP11A2604	Screw
102	PGWP16X040040	Washer
103	PGWP26X042013	Washer

8. INTERIOR BLOCK DIAGRAM OF IC

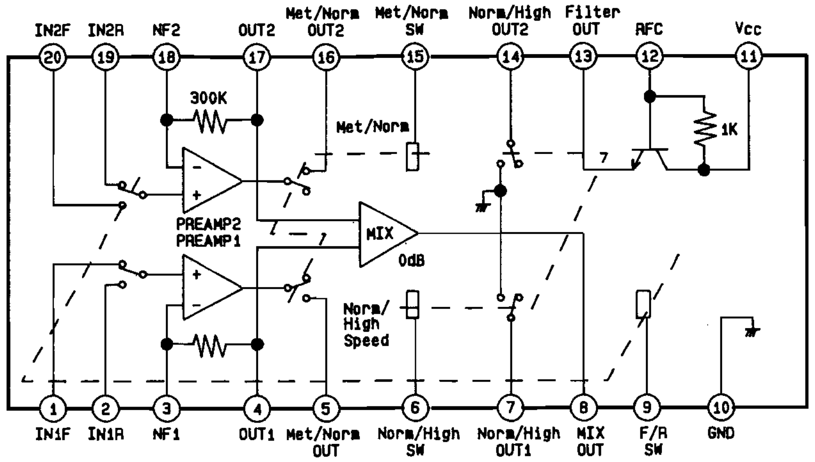
IC204 M66310P


PARALLEL DATA OUTPUTS
SERIAL DATA OUTPUT
Qa Qb Qc Qd Qe Qf Qg Qh Qi Qj Qk Ql Qm Qn Qo Qp
SQp
Vcc
1 2 24 23 22 21 20 19 18 17 16 15 14 13 11 12 10 3
O CK D R
I CK D R
P
5 4 8 7 6 9
OE ENABLE INPUT
A SERIAL DATA INPUT
CKs SHIFT CLOCK INPUT
R DIRECT RESET INPUT
CKl LATCH CLOCK INPUT
GND

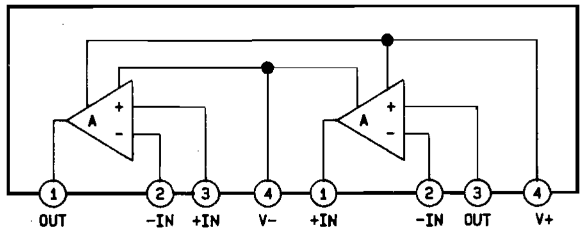
IC301 M37420M-413SP

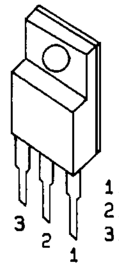

CLOCK I/P 24
CLOCK O/P 25
RESET I/P 23
Vcc 52
Vee 26
CNV 22
CLOCK GENERATOR
MONITOR TIMER
RAM 256 BYTE
PROGRAM COUNTER PCn (8)
PROGRAM COUNTER PCl (8)
ROM 12288 BYTE
TIMER 1 T1 (8)
PRE SCALLER PRE 12 (8)
TIMER 2 T2 (8)
PRE SCALLER PRE 3 (8)
TIMER 3 T3 (8)
PRE SCALLER PRE X (8)
TIMER X TX (8)
CNTR
REGISTER
DECORDER
CONTROLLER
8 BIT UNIT
ACCUMULATOR A (8)
PROCESS STANDER REGISTER PS (8)
INCODE REGISTER X (8)
INCODE REGISTER Y (8)
STACK PCINTER S (8)
D-A CONVERTER (8)
PLUS AMP MODULATOR (14)
V PLUS Y PLUS GENERATOR
A-D CONVERTER (8)
S I/O (16)
INT2
INT1
P6 (4)
P5 (8)
P4 (4)
P3 (8)
P2 (8)
P1 (6)
P0 (8)
1 2 3 4
17 18 19 20 21 27 28 29
5 6 7 8
9 10 11 12 13 14 15 16
44 45 46 47 48 49 50 51
30 31 32 33 34 35
36 37 38 39 40 41 42 43
I/O POT P6
I/O POT P5
I/O POT P4
I/O POT P3
I/O POT P2
I/O POT P1
I/O POT P0

IC101 LA3246


IN2F IN2R NF2 OUT2
Met/Norm OUT2
Met/Norm SW
Norm/High OUT2
Filter OUT
RFC
Vcc
20 19 18 17 16 15 14 13 12 11
300K
Met/Norm
1K
PREAMP2
PREAMP1
MIX
0dB
Norm/ High Speed
1 2 3 4 5 6 7 8 9 10
IN1F IN1R NF1 OUT1
Met/Norm OUT
Norm/High SW
Norm/High OUT1
MIX OUT
F/R SW
GND

IC201 M5218AL

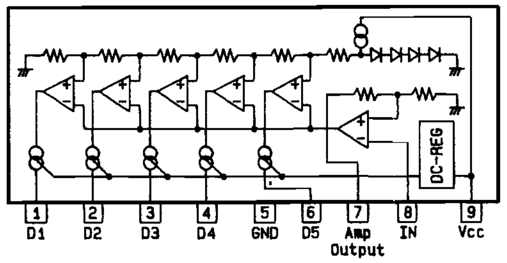

A
A
1 2 3 4 1 2 3 4
OUT -IN +IN V- +IN -IN OUT V+

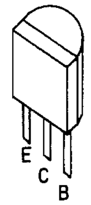


IC202 NJM78M05FA
IC203 NJM78M15A

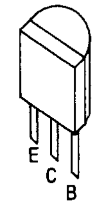
1.OUT
2.GND
3.IN

IC205 BA6124


DC-REG
1 2 3 4 5 6 7 8 9
D1 D2 D3 D4 GND D5 Amp Output IN Vcc

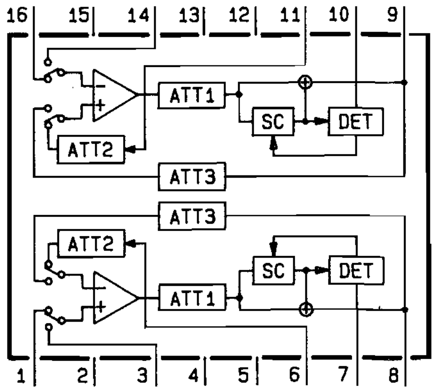


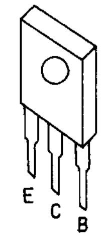
2SC945P
2SC2001L
2SA733P
2SC2060R
2SA952L



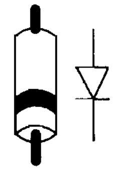
DTA144ES
DTA124ES
DTC114TS
DTC124ES

IC102 CXA1101P


16 15 14 13 12 11 10 9
ATT1
SC
DET
ATT2
ATT3
ATT3
ATT2
SC
DET
ATT1
1 2 3 4 5 6 7 8

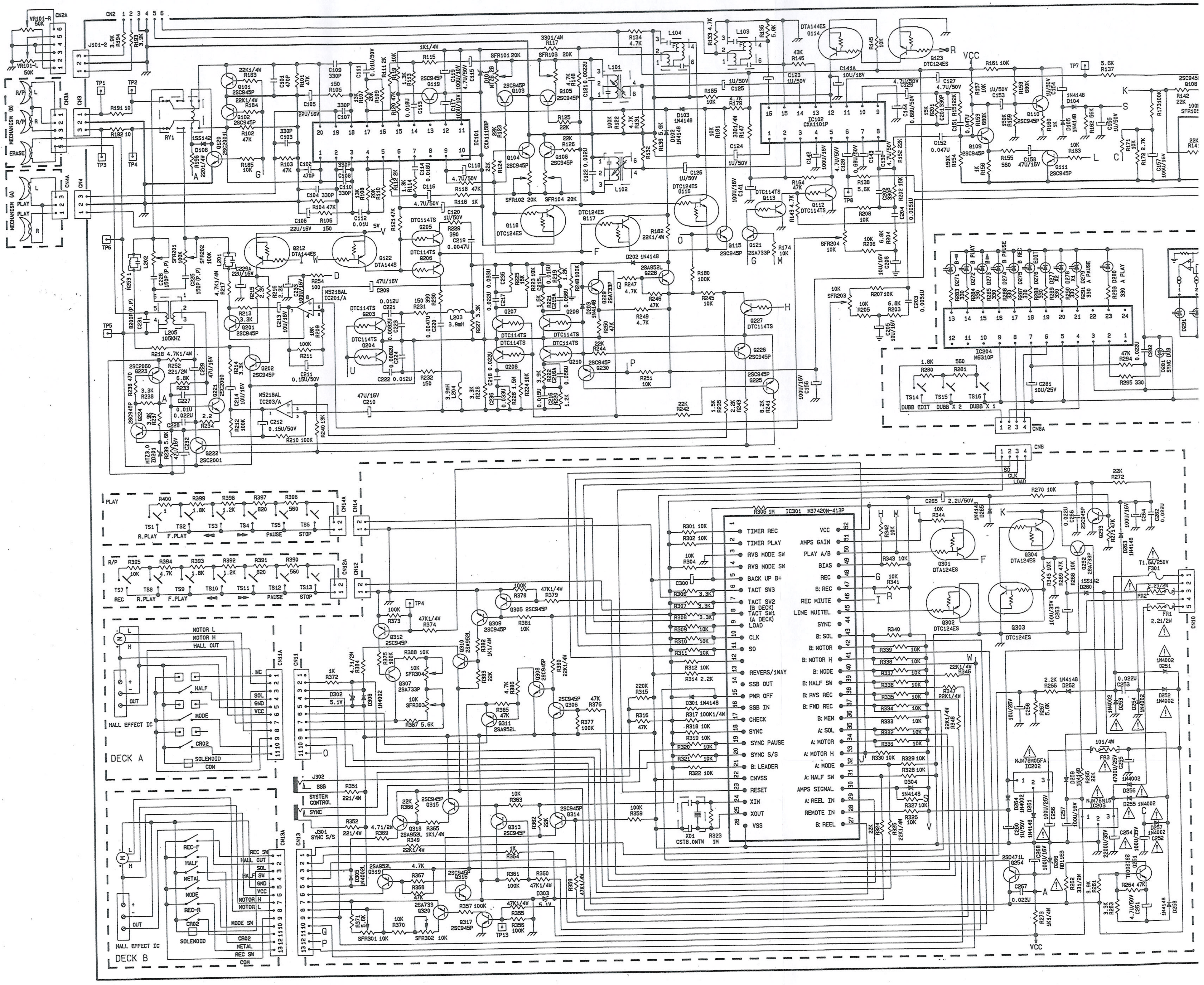


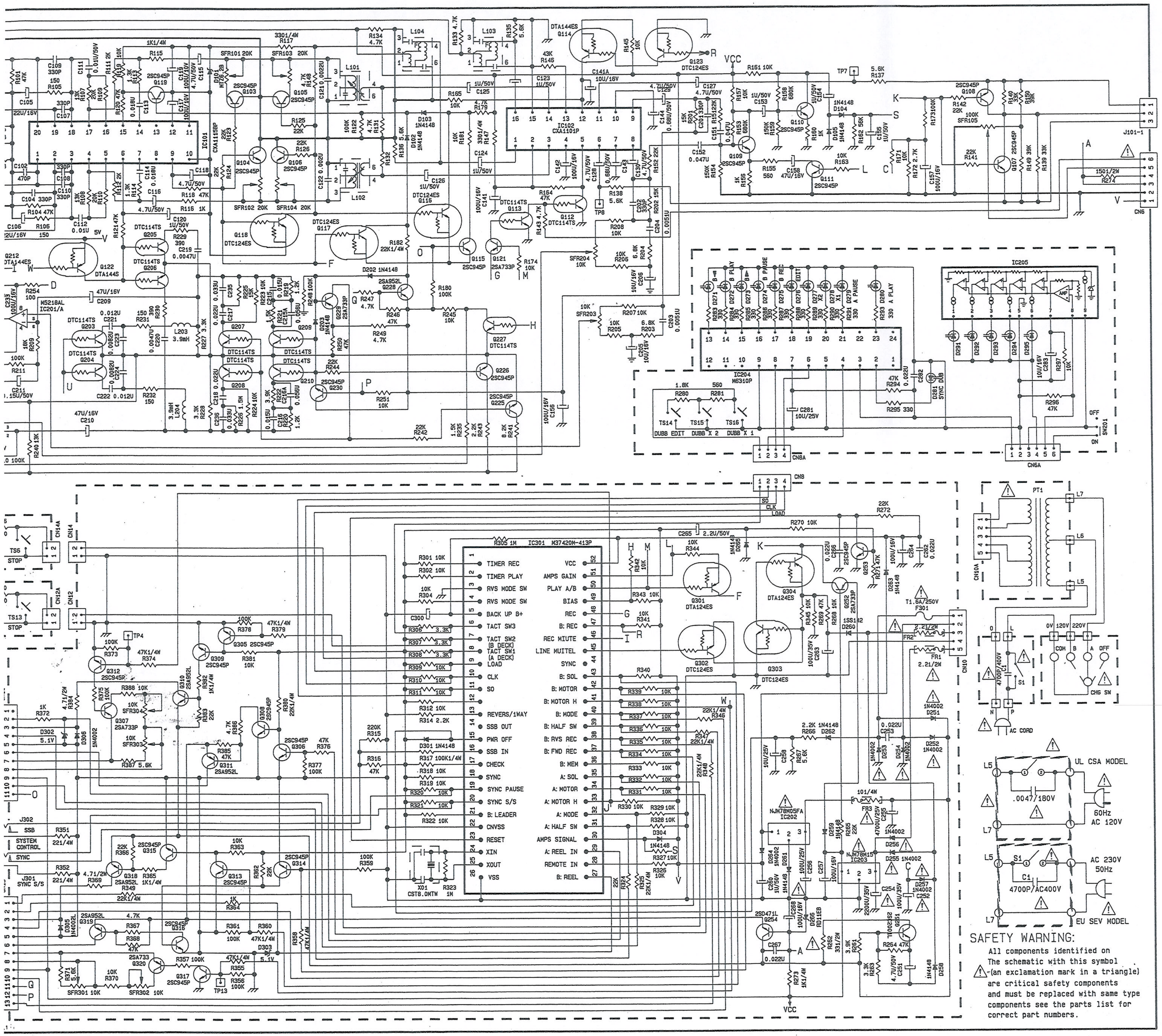
2SD471L



1N4148
1SS142
1N4002L

7. SCHEMATIC DIAGRAM

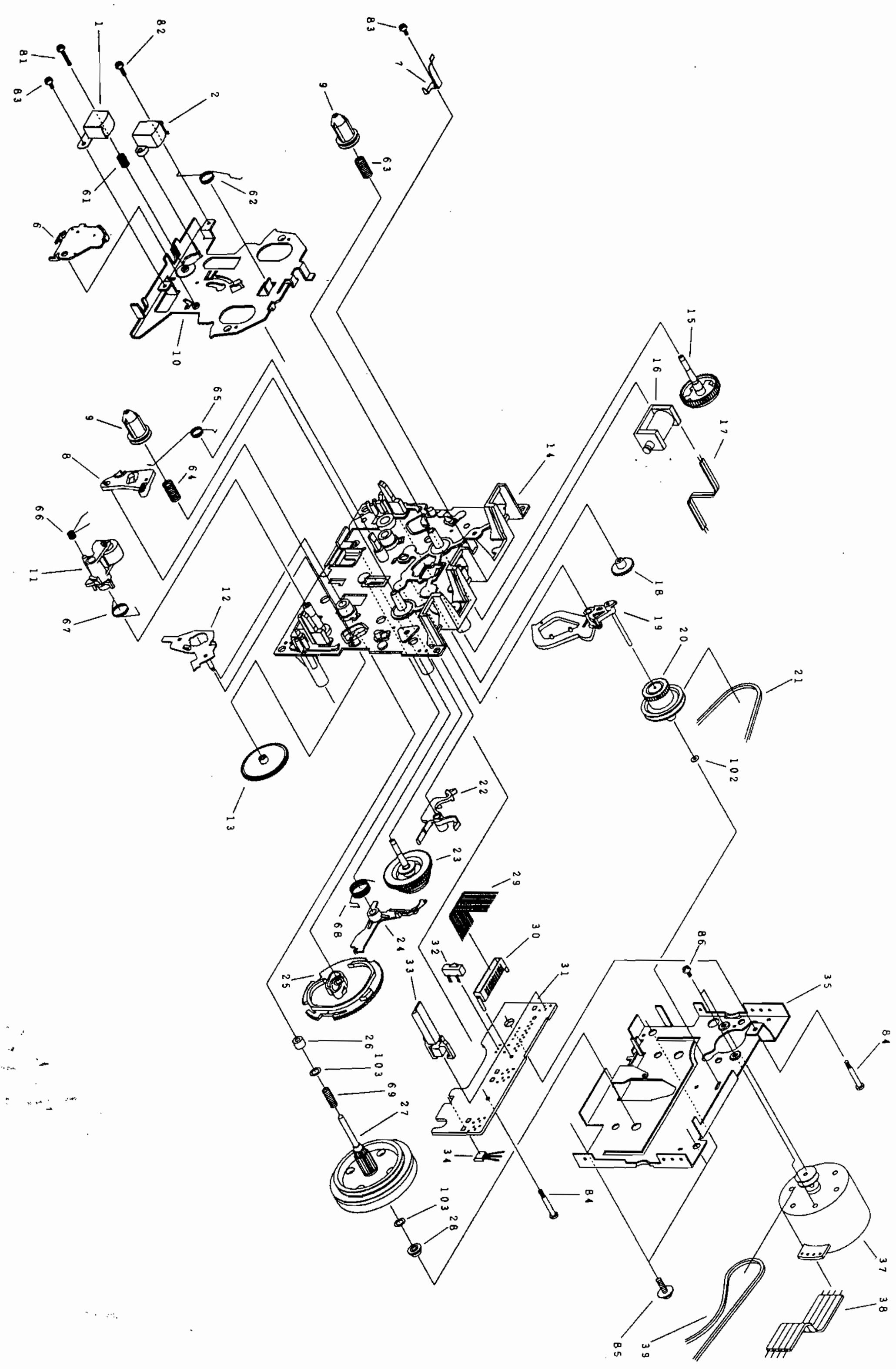

MECHANISM (B)
R/P
ERASE
MECHANISM (A)
PLAY
IC102 CXA1101P
IC201/A M5218AL
IC203/A M5218AL
IC204 M5310P
IC301 M37420M-413P
IC202 NJM78M05FA
IC203 NJM78M15
DUBB EDIT
DUBB x 2
DUBB x 1
R.PLAY
F.PLAY
PAUSE
STOP
REC
HALL EFFECT IC
DECK A
DECK B
SOLENOID
SYSTEM CONTROL
SYNC
SSB
VCC


IC101 CXA1115BP
IC102 CXA1101P
IC204 M5310P
IC205
IC301 M37420M-413P
R305 1M
1 TIMER REC
2 TIMER PLAY
3 RVS MODE SW
4 RVS MODE SW
5 BACK UP B+
6 TACT SW3
7 TACT SW2 (B DECK)
8 TACT SW1 (A DECK)
9 LOAD
10 CLK
11 SO
12
13 REVERS/1WAY
14 SSB OUT
15 PWR OFF
16 SSB IN
17 CHECK
18 SYNC
19 SYNC PAUSE
20 SYNC S/S
21 B: LEADER
22 CNVSS
23 RESET
24 XIN
25 XOUT
26 VSS
52 VCC
51 AMPS GAIN
50 PLAY A/B
49 BIAS
48 REC
47 B: REC
46 REC MIUTE
45 LINE MUITEL
44 SYNC
43 B: SOL
42 B: MOTOR
41 B: MOTOR H
40 B: MODE
39 B: HALF SW
38 B: RVS REC
37 B: FWD REC
36 B: MEM
35 A: SOL
34 A: MOTOR
33 A: MOTOR H
32 A: MODE
31 A: HALF SW
30 AMPS SIGNAL
29 A: REEL IN
28 REMOTE IN
27 B: REEL
X01 CST8.0MTW
R323 1M
D301 1N4148
R317 100K1/4W
IC201/A M5218AL
IC202 NJM78M05FA
IC203 NJM78M15FA
J101-1
CN6
CN6A
CN8A
CN9
CN10
CN10A
CN12
CN12A
CN14
CN14A
J302
SSB
SYSTEM CONTROL
SYNC
J301 SYNC S/S
TS6 STOP
TS13 STOP
TS14 DUBB EDIT
TS15 DUBB X 2
TS16 DUBB X 1
SW201 OFF ON
D281 SYNC DUB
B PLAY
B PAUSE
B REC
EDIT
X2
X1
A PAUSE
A PLAY
PT1
L5
L6
L7
F301 T1.6A/250V
FR1 2.2Ω/2W
FR2 2.2Ω/2W
FR3
0V 120V 220V
COM B A OFF
CHG SW
S1
C1 4700P/400V
N P
AC CORD
UL CSA MODEL
.0047/180V
60Hz AC 120V
EU SEV MODEL
C1 4700P/AC400V
AC 230V 50Hz
VCC
TP4
TP7
TP8
TP13

SAFETY WARNING:

All components identified on The schematic with this symbol ⚠ (an exclamation mark in a triangle) are critical safety components and must be replaced with same type components see the parts list for correct part numbers.

9-2. Mechanism Exploded View (For Deck A, 207-CFF403)


1
82
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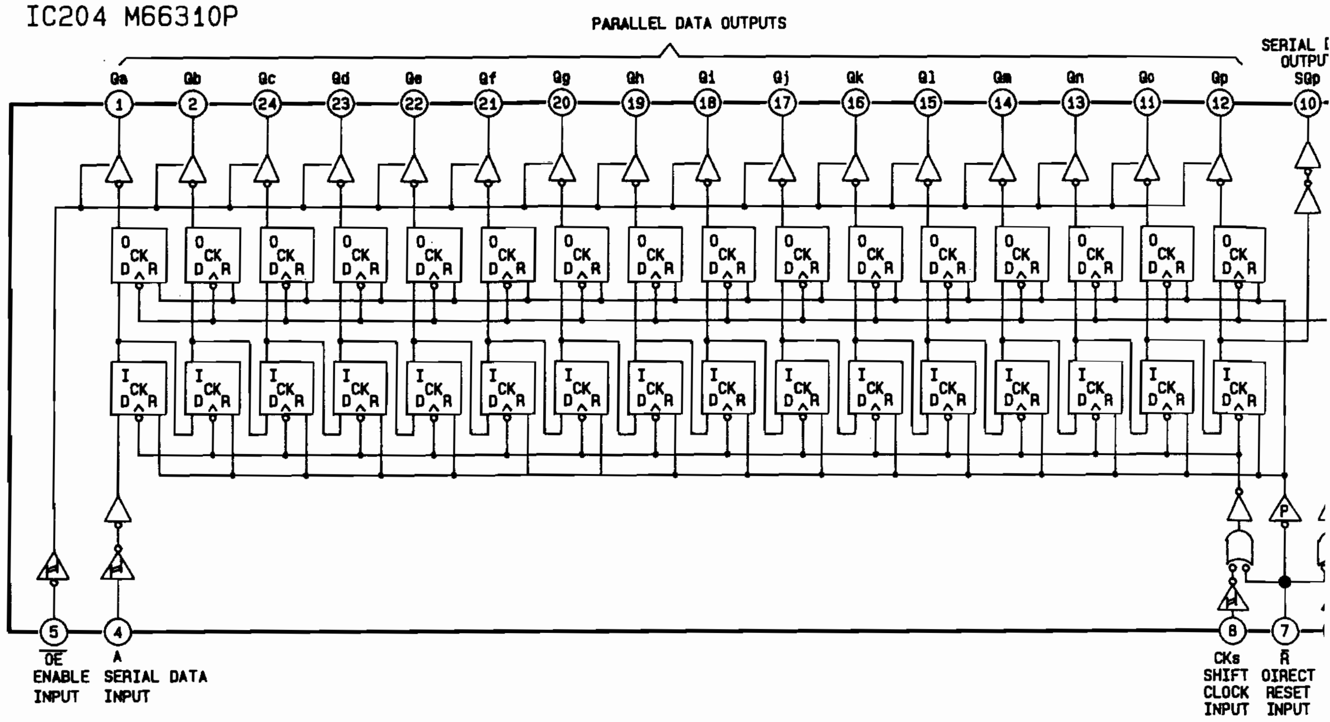
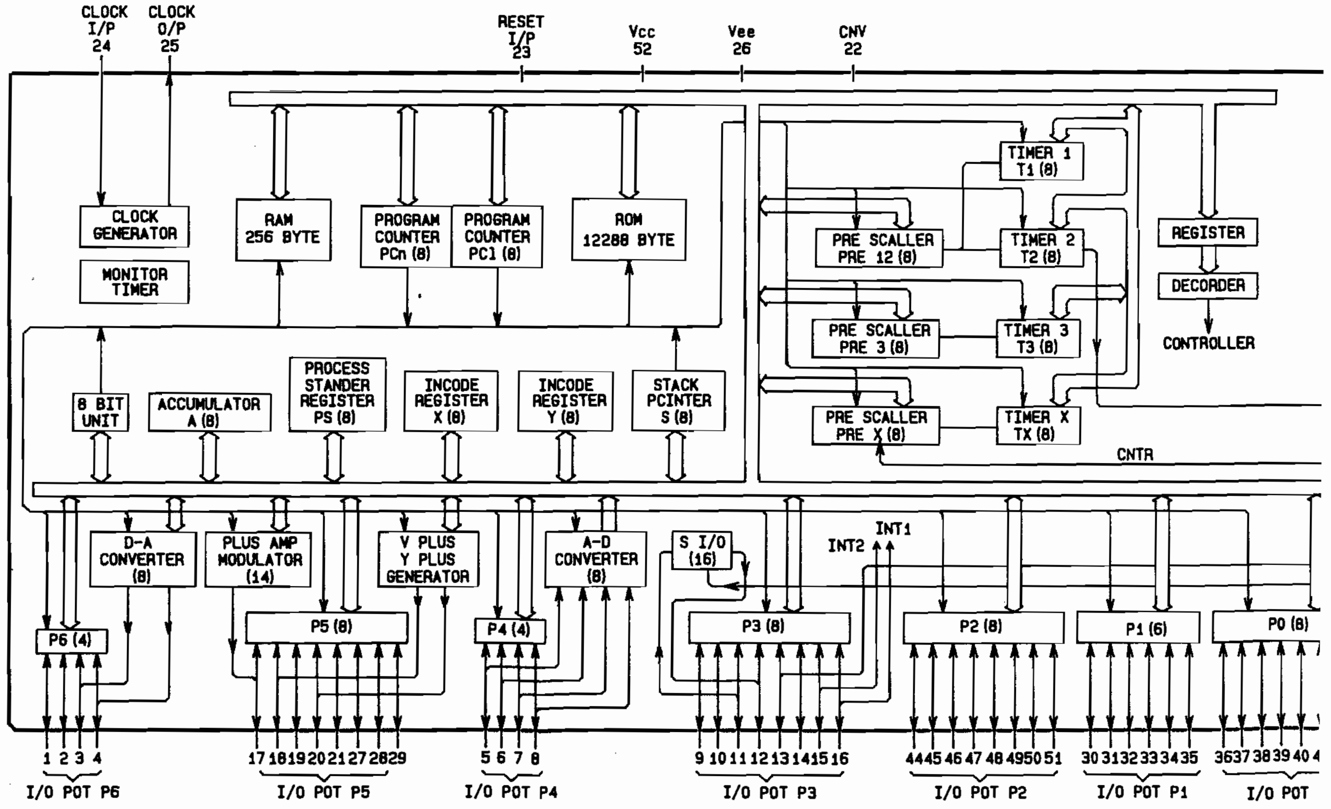
85

8. INTERIOR BLOCK DIAGRAM OF IC

IC204 M66310P

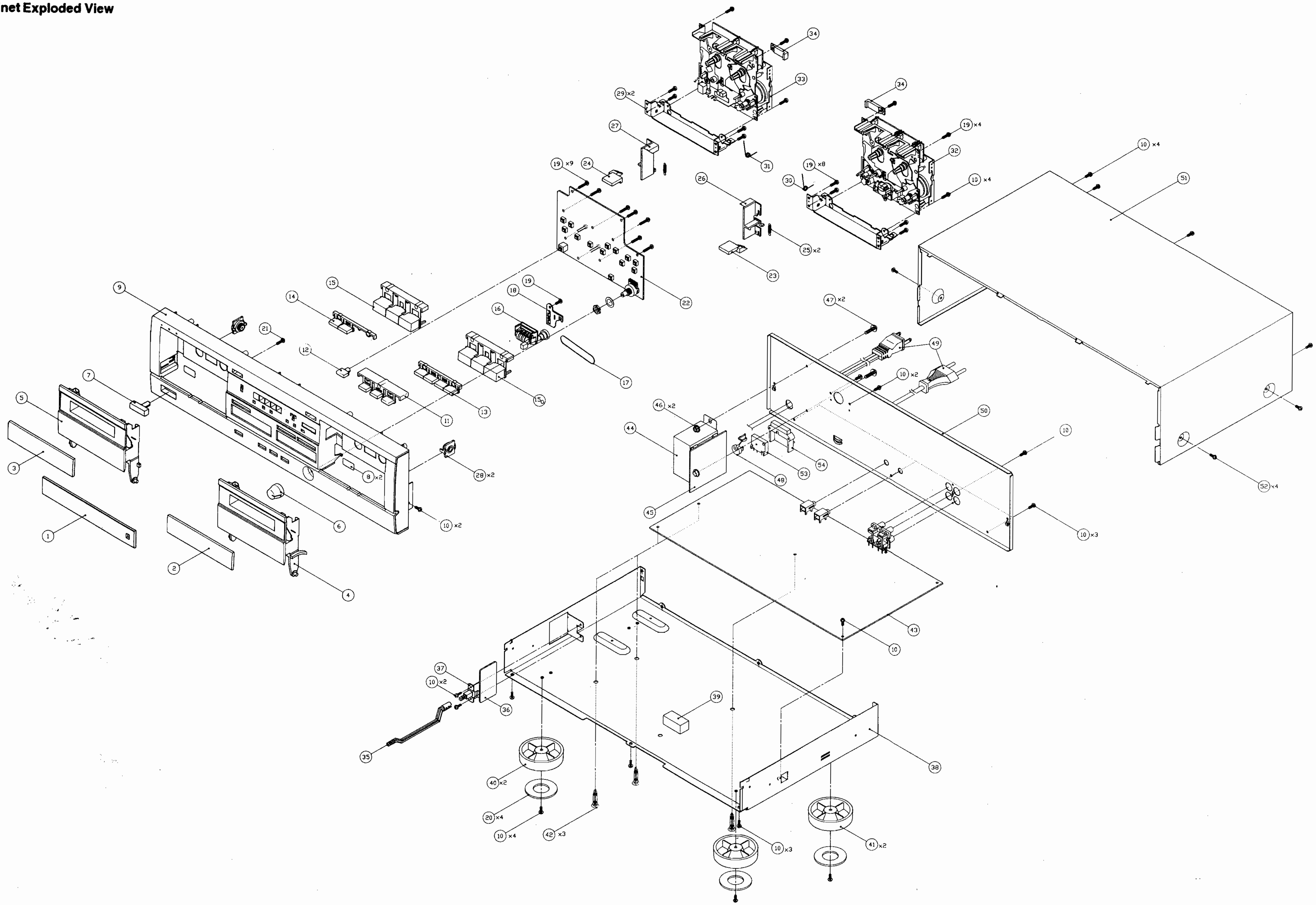

PARALLEL DATA OUTPUTS
Qa 1
Qb 2
Qc 24
Qd 23
Qe 22
Qf 21
Qg 20
Qh 19
Qi 18
Qj 17
Qk 16
Ql 15
Qm 14
Qn 13
Qo 11
Qp 12
SERIAL D
OUTPU
SQp 10
O CK D R
I CK D R
5 OE ENABLE INPUT
4 A SERIAL DATA INPUT
8 CKs SHIFT CLOCK INPUT
7 R DIRECT RESET INPUT

IC301 M37420M-413SP


CLOCK I/P 24
CLOCK O/P 25
RESET I/P 23
Vcc 52
Vee 26
CNV 22
CLOCK GENERATOR
MONITOR TIMER
RAM 256 BYTE
PROGRAM COUNTER PCn (8)
PROGRAM COUNTER PCl (8)
ROM 12288 BYTE
TIMER 1 T1 (8)
PRE SCALLER PRE 12 (8)
TIMER 2 T2 (8)
PRE SCALLER PRE 3 (8)
TIMER 3 T3 (8)
PRE SCALLER PRE X (8)
TIMER X TX (8)
CNTR
REGISTER
DECORDER
CONTROLLER
8 BIT UNIT
ACCUMULATOR A (8)
PROCESS STANDER REGISTER PS (8)
INCODE REGISTER X (8)
INCODE REGISTER Y (8)
STACK PCINTER S (8)
D-A CONVERTER (8)
PLUS AMP MODULATOR (14)
V PLUS Y PLUS GENERATOR
A-D CONVERTER (8)
S I/O (16)
INT2
INT1
P6 (4)
P5 (8)
P4 (4)
P3 (8)
P2 (8)
P1 (6)
P0 (8)
1 2 3 4
I/O POT P6
17 18 19 20 21 27 28 29
I/O POT P5
5 6 7 8
I/O POT P4
9 10 11 12 13 14 15 16
I/O POT P3
44 45 46 47 48 49 50 51
I/O POT P2
30 31 32 33 34 35
I/O POT P1
36 37 38 39 40 4
I/O POT

9. EXPLODED VIEW OF CABINET & MECHANISM

9-1. Cabinet Exploded View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19 ×4
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31
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10 ×4
10 ×4
51
19 ×9
24
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25 ×2
23
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14
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12
17
47 ×2
49
10 ×2
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46 ×2
44
50
10
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8 ×2
28 ×2
53
54
48
45
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10 ×2
1
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10 ×3
52 ×4
43
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10 ×2
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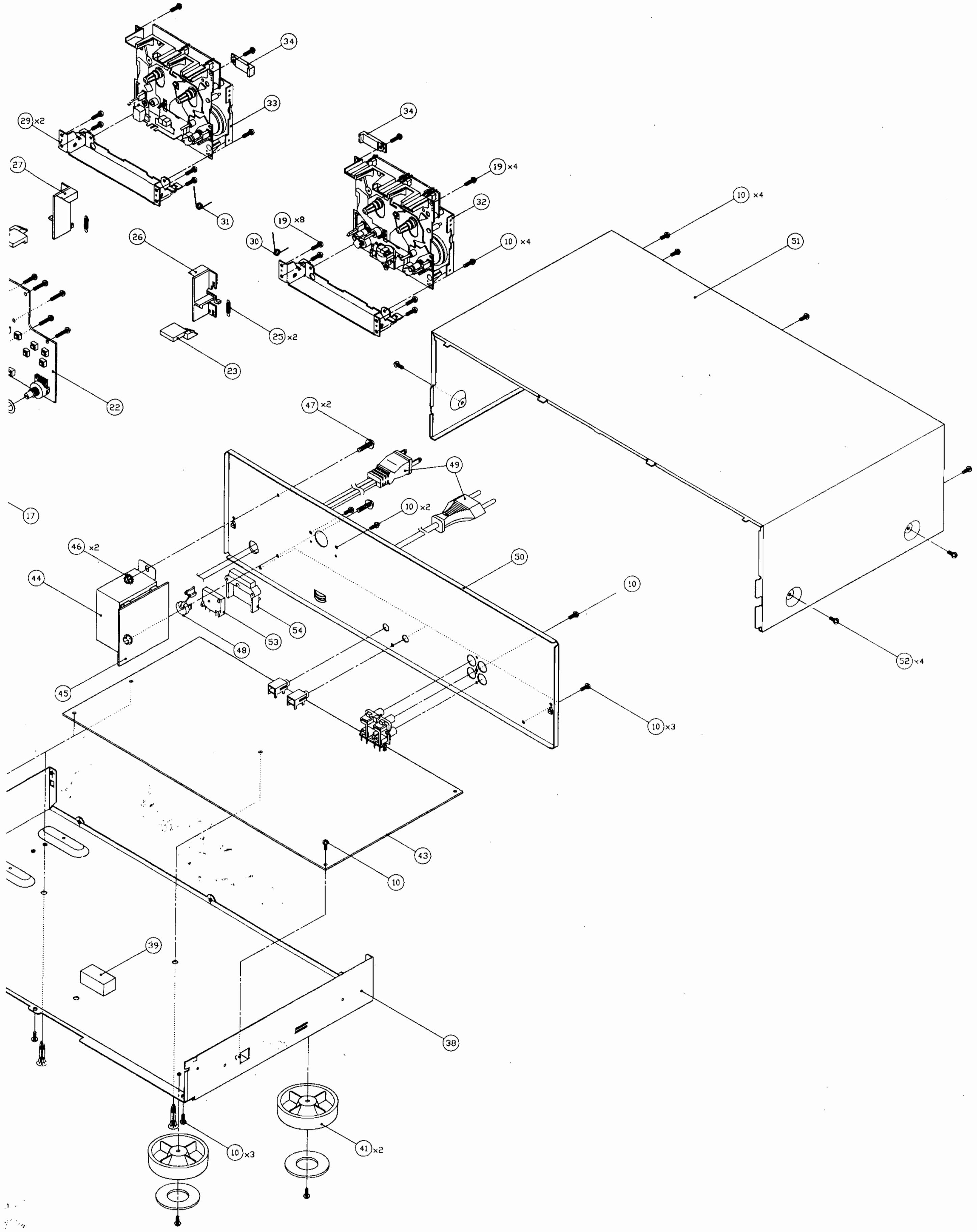
40 ×2
20 ×4
10 ×4
42 ×3
10 ×3
41 ×2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25 ×2
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47 ×2
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46 ×2
50
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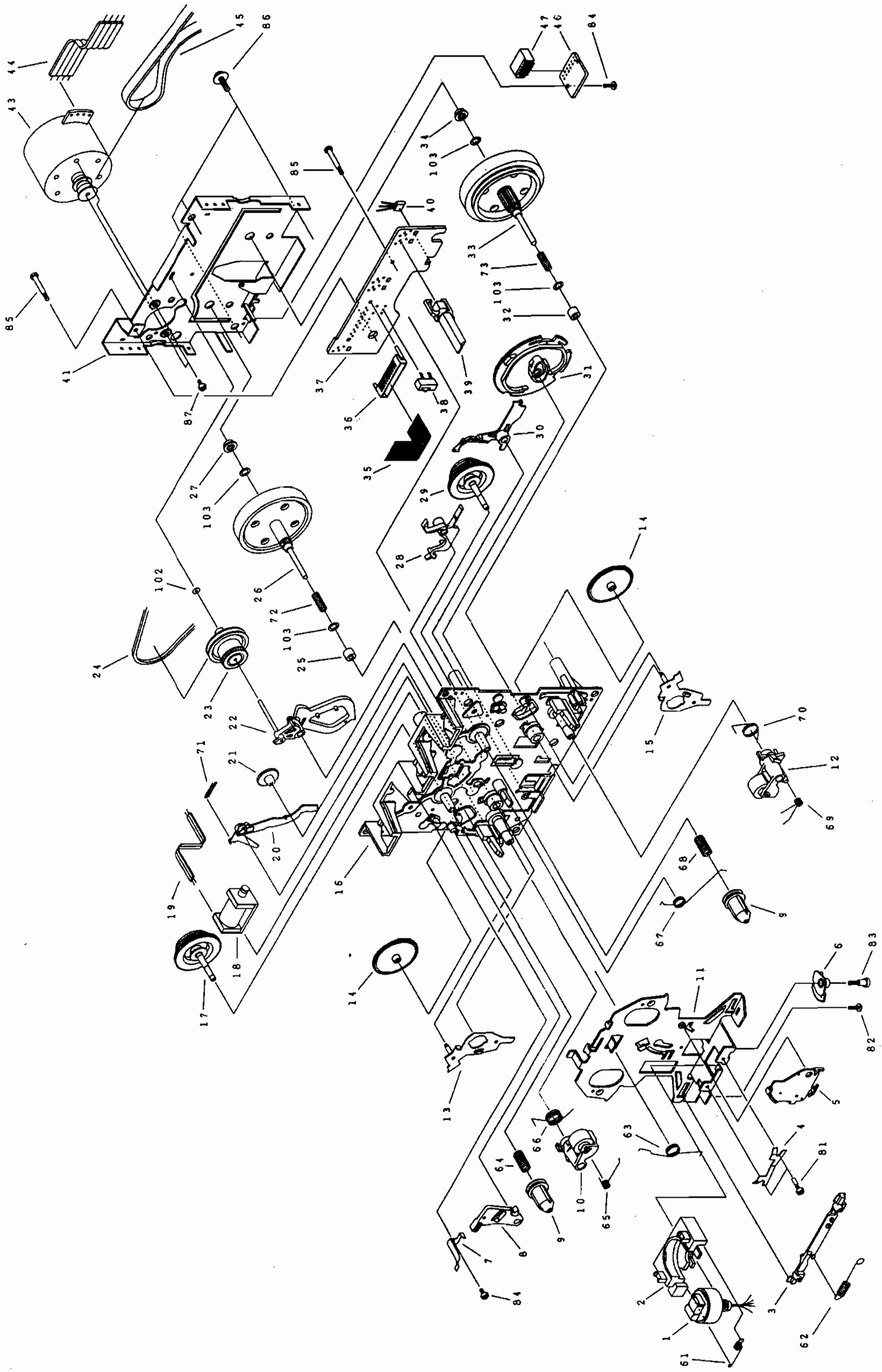
52 ×4
10 ×3
43
10
39
38
10 ×3
41 ×2

9-3. Mechanism Exploded View (For Deck B, 207-CRF408)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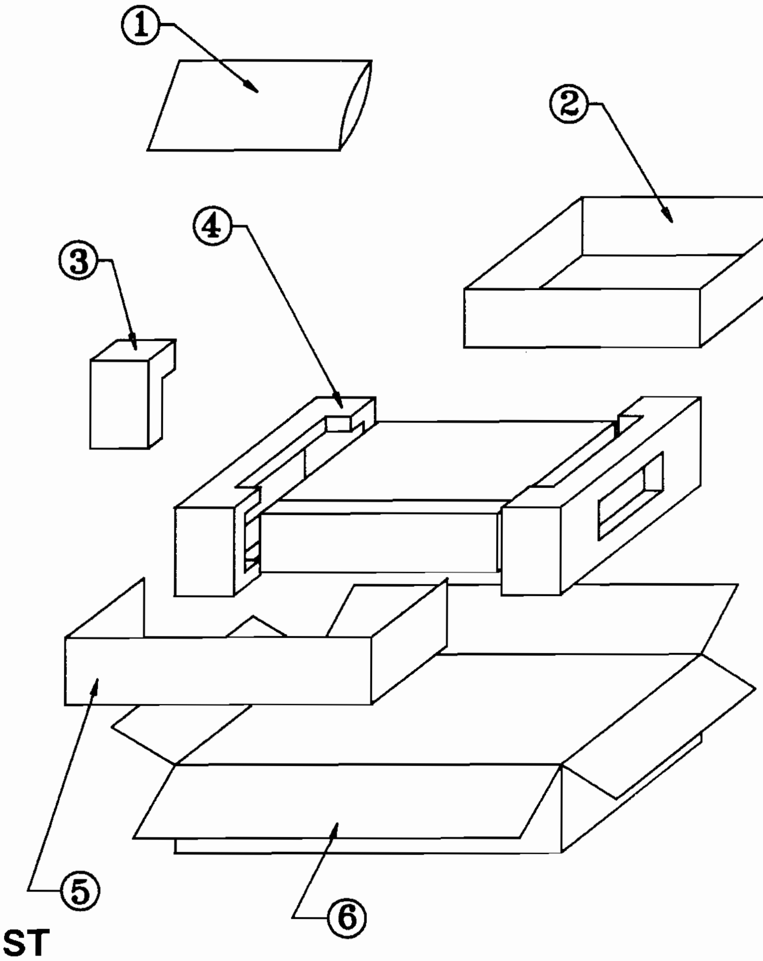
84
2
1
61
3
62

10. PACKING LIST

Ref. No.	Part No.	Description
1	402-B219	Poly Bag 230x400x0.04t
2	402-A2900	PE Bag 600x500x0.05t
3	404-L219	Snow Plate "L"
4	404-SB219	Snow Box
5	434-A219	Miramat 550x330x0.5t
6	600-A219UL	Carton 504x334x184mm



11. ACCESSORY LIST

Ref. No.	Part No.	Description
	186-A11000	Patch Cord BLK-1M
	186-C10600	3.5Q Plug Cable BLK-600mm
	612-A219	Instruction Book (3L) (For UL,XX Model Only)
	612-B219	Instruction Book (2L) (For SS Model Only)
	612-C219	Instruction Book (7L) (For EU Model Only)
	402-B219	Poly Bag (I/B) 230x400x0.04t

SANSUI ELECTRIC CO., LTD.: 7F J-TOWER, 1-1 Nikkocho, Fuchu-shi, Tokyo 183, Japan
PHONE:(0423)30-7420/FAX:(0423)30-7425
SANSUI USA INC.: 1290 Wall Street West. Lyndhurst,N.J. 07071 U.S.A.
17150 South Margay Ave. Carson,California 90746 U.S.A.
SANSUI DEUTSCHLAND G.B.H.: Paul Ehrlich Strasse 8, 6074 Rödermark 2, F.R. Germany
山水電氣株式會社 東京都府中市日鋼町1番1 Jタワー7F(〒183)

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